

REMARKS

Claims 17-33 are all the claims pending in this application. Claims 17, 18, 30 and 31 have been amended, support for which can be found, for example, at page 18 of the present specification.

Entry of the above amendment is respectfully requested.

I. Rejection of claims 17-33 under 35 U.S.C. § 112, second paragraph

On page 2 of the Office Action, the Examiner maintains the rejection of claims 17-33 under 35 U.S.C. 112, second paragraph, as being indefinite.

Generally, a battery comprises a negative electrode and a positive cathode with a porous separator in between. Therefore, claims 17, 18, 30 and 31 have been amended to recite the presence of a second electrode.

Accordingly, it is respectfully submitted that the claims recite components of a battery, and withdrawal of the foregoing rejection is respectfully requested.

II. Rejection of claims 17-33 under 35 U.S.C. § 103(a)

On page 2 of the Office Action, the Examiner maintains the rejection of claims 17-33 under 35 U.S.C. 103(a) as being unpatentable over Ichino et al.

Basically, the Examiner's position is substantially the same as that set forth in the previous Office Action. In response to Applicants' arguments, the Examiner agrees that Ichino and the present invention differ in that Ichino utilizes a pre-polymer electrolyte film while the present invention uses a solid polymer electrolyte film (at least claims 17 and 30). However, the Examiner takes the position that since both

Ichino and the present invention utilize a reduced pressure within the porous film to bond the polymer electrolyte film (solid or pre-solid), one of ordinary skill in the art would have impregnated an electrolyte under vacuum, at least with respect to the use of polymerizable electrolyte film.

Applicants respectfully respond as follows.

Ichino relates to a composite polymer electrolyte membrane as an SPE film, obtained by impregnating pores of a porous membrane matrix as a support with prepolymer electrolyte under vacuum. The purpose of drawing a vacuum is to remove air from the pores to be impregnated so as to enhance or accelerate the impregnation. Fabrication of an SPE film involving the impregnation step under vacuum cannot be completed without a porous membrane support.

In contrast, the present invention relates to a composite of a solid polymer electrolyte and an electrode, which Ichino neither describes nor suggests. In addition, in the present invention, the purpose of decompression is to improve adhesion between a porous electrode and an SPE film which has been prepared through a polymerization process using heat or light and thereby obtaining a composite of a solid polymer electrolyte film and a thin filmed shaped electrode with good adhesion. What is porous in the present invention is not a membrane as in Ichino, but an electrode which dominates the properties of a battery. Even if the electrode of the present invention is considered/construed as a porous matrix material, i.e., an equivalent to the membrane of Ichino, no impregnation of the pores of the electrode is

involved in the fabrication process of the composite of the present invention, whereas Ichino includes an impregnation step of the pores of the membrane.

In addition, with respect to solid polymer electrolyte used for coating the electrode surface as recited in claim 18 of the present application, since the coating thickness is only 5 μm (see Example 2), which is one-fifteenth or less than the thickness of the electrode, the electrode is not impregnated with the solid polymer electrolyte.

Moreover, considering the insufficient strength of an SPE film containing an electrolyte and the volatility of a solvent constituting the film, it would not have been easy or obvious for one of ordinary skill in the art to subject such a formed film to vacuum pressure. Therefore, Ichino does not provide any technical motivation that would lead one of ordinary skill in the art to form the composite of the SPE film and porous electrode of the present invention, and thus the present invention is not taught or suggested by Ichino.

In view of the above, it is respectfully submitted that Ichino does not teach or suggest the present invention. Accordingly, withdrawal of the foregoing rejection is respectfully requested.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone

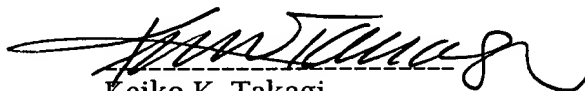
AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Application No.: 09/775,619

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interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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